CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
34676

Project Title
Will the Egg Break?

Abstract

Objectives/Goals
The objective of my project is to determine which material, air beads, memory foam, or fiber protects the eggs from cracking. Based on my research on the materials, the hypothesis is that the air beads will protect the egg the best because there are hundreds of tiny beads surrounding the eggs.

Methods/Materials
Three identical cylinders that were made of chicken wire, pull ties, and cellophane wrap. Each cylinder was labeled, wrapped and had a diameter of five by five and a height of three feet were constructed. Within each cylinder contained three white, non-organic, Grade AA eggs that were placed horizontally. On top of the eggs contained air beads, memory foam, or fiber. Each cylinder had a different material. The fill line for the materials was six inches from the bottom. A five pound weight was dropped from four heights, four times each six inches up. An average was concluded from the four times at the four points. In the process I constructed a stand that had a metal pan on top because the cylinder was not capped off.

Results
In trial one I dropped the weight twelve inches from the bottom of the cylinder, the average number of eggs cracked for air beads was 0, memory foam was 0.75, and fiber was 3. In trial two I dropped a weight eighteen inches from the bottom, the average number of eggs cracked for air beads was 0.75, memory foam was 2, and fiber was 2.5. In trial three I dropped a weight twenty four inches from the bottom, the average number of eggs cracked for air beads was 1.5, memory foam was 2.75, and fiber was also 2.75. In trial four I dropped a weight thirty inches from the bottom, the average number of eggs cracked for air beads was 2, memory foam was 2.5, and fiber was 3.

Conclusions/Discussion
In conclusion my hypothesis was correct; the air beads protected the eggs the best unlike the fiber and memory foam. The fiber was less dense, so almost all of the eggs cracked in each trial and in each height. This proved that air beads are an excellent material for packing fragile items and being used in a pillow.

Summary Statement
Three cylinders were made to test three types of materials, air beads, memory foam, and fiber; I conducted four trials by dropping a five pound weight from four different heights to see which material would protect three white eggs.

Help Received
My mother helped me buy the materials, assisted with the trials, and was the cleanup crew; Mr. McCready and Miss Smigielski, my teachers helped with advice and encouragement.